

**CHEMSTAR**

CHEMSTAR, Inc.  
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\* Original w/maps  
in bound 3-ring  
mine plan notebook

**RECEIVED**

DEC 24 1992

DIVISION OF  
OIL GAS & MINING

MINING AND RECLAMATION PLAN

FOR

GRANTSVILLE UTAH PLANT

AND QUARRY OPERATIONS

M/045/028

DECEMBER 18, 1992

A MEMBER OF THE  
CHEMICAL LIME GROUP



# Explanation of Symbols

★ State Capital

● Nearest County Seat

## Population Key

- Under 250
- 250-499
- 500-999
- 1,000-2,499
- 2,500-4,999
- 5,000-9,999
- 10,000-19,999
- 20,000-24,999
- 25,000-49,999
- 50,000-99,999
- 100,000-249,999
- 250,000-999,999
- 1,000,000 +

0 20 40 80 Miles

0 20 40 60 80 Kilometers

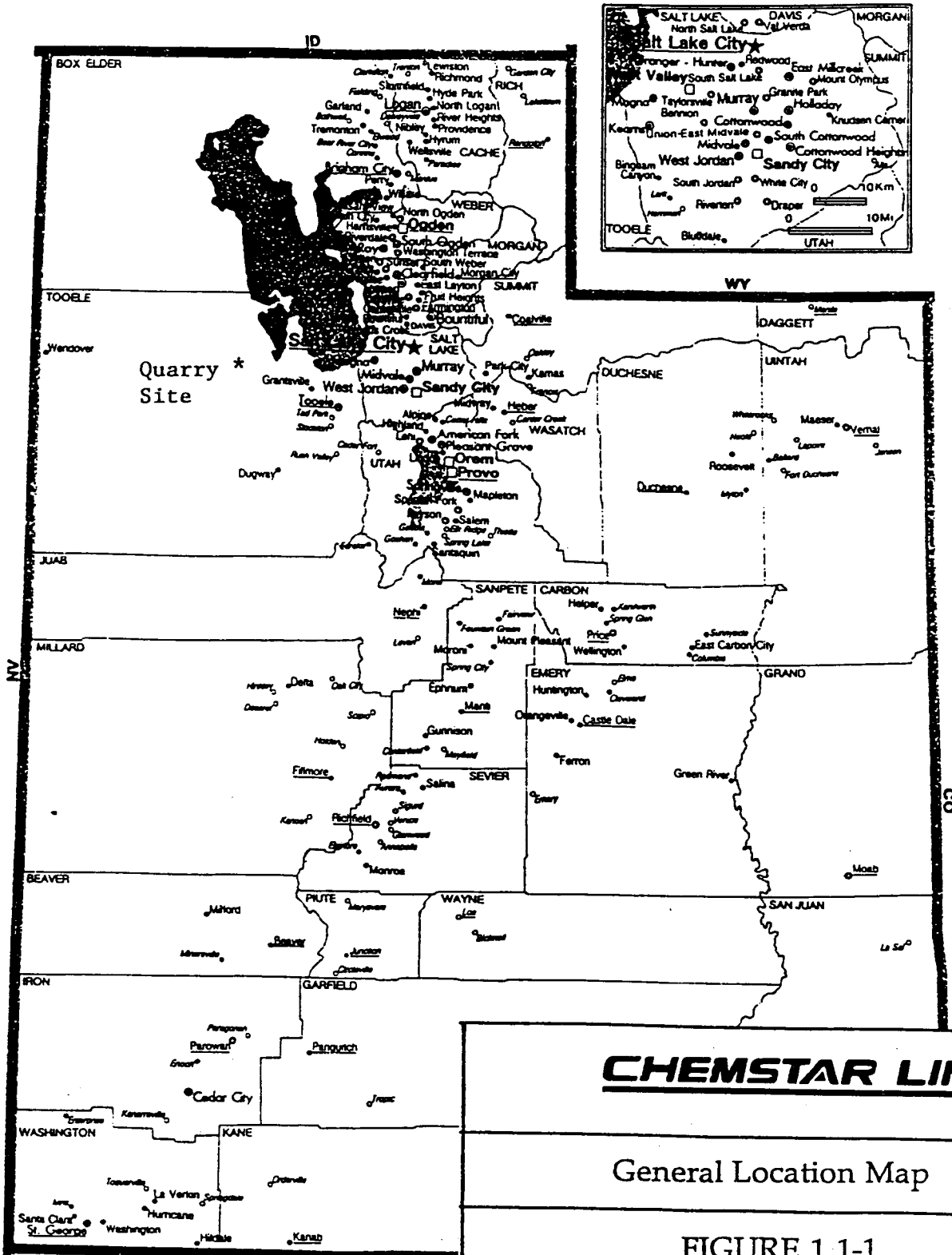
ClearType®

County-Town

**UTAH**

AMC

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December 18, 1992

Mr. D. Wayne Hedberg  
State Of Utah  
Department of Natural Resources  
Division of Oil, Gas, and Mining  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

Dear Mr. Hedberg:

Re: Plan Review, Chemstar, Inc., Grantsville Quarry,  
M/045/028, Tooele County, Utah

Chemstar has collected the information you requested in your plan review dated, April 8, 1992, and has attempted to provide it in the requested format.

**R647-4-105. Maps, Drawings and Photos**

None of the pre-law sites, marked on the previously provided map, are or have been active.

-105.1.11 Copies of Tooele County, Utah Plat Department Maps, Book 4 Pages 86 & 92 have been attached providing Property Ownership showing pertinent surface and mineral ownership boundaries of the affected mine site area and properties immediately adjacent to the active site.

-105.3.15 The Division has requested that we provide a "pond maintenance plan which includes provisions for routine clean out and proper disposal of the impounded sediments."

Presently, the wastewater discharge to the wastewater/drainage pond has not been large enough to cover the bottom of the pond. However, at any time that the impounded sediments build up to a level that the entrapped water approaches a level within 12 inches of the top of the berm enclosing the pond, the sediments will be dredged from the pond, and be removed to the waste lime dump west of the plant site.

Another plan is to increase the height of the berm surrounding the pond to maintain a greater than 12 inch difference between the level of the sediments and the height of the berm.

Use of both proposed plans will insure the ongoing integrity of the wastewater/drainage pond. The second plan would also provide for wet periods where entrapped rainwater runoff would fill the pond without the corresponding increase in sediments.

-105.3.17 "A reclamation activities and treatment map to identify the location and extent of the reclamation work to be performed by the operator is still required."

A topographical map was provided with the NOI dated 3/21/90. This map provides detail of disturbed properties as of that date. The map represents the area affected and areas to be affected.

Quarry -	25 Acres
Waste Lime Dump -	9 Acres
Roads -	5 Acres
Plant Site -	17 Acres
Wastewater Pond -	13 Acres

#### **R647-4-106. Operation Plan**

-106.2 "The operator must provide the Division with Soil Analyses from materials that may pose a problem to reclamation," as outlined on the Division's Attachment A.

A composite of 12 soil samples taken from across the State Leased Property described on the provided maps was sent to the Utah State University Soil Testing Laboratory. A grab sample was taken from the fines storage area sent in to be tested. The results provided by Utah State University are enclosed for your review.

The soil samples appear to be little more than severely weathered rock. The soil samples could be taken only as deep as 3 to 4 inches, since rock was encountered at that point.

The lime in the lime dump will be covered with 6 to 8 inches of limestone fines. This will provide a cover twice the depth of the original soil, and provide plenty of room for root systems to grow.

Soil Test results indicate that limestone fines, with the addition of phosphorus, nitrogen, and potassium, will provide an adequate soil median.

-106.3 "The operation is supposedly expanding onto a leased 200 acre area and the operator's estimate of disturbed acreage is currently 70 acres. A future mine plan covering 5 to 10 years which includes development plans for the new lease should be submitted."

About 90% of all quarry work proposed for the next 5 to 10 years will occur on Chemstar's Patented Property. As the present quarry is developed, it will become necessary to move access roads to the south, onto the State Lease Property, to allow for development of each level. It appears that less than 20 acres of leased property will be



disturbed as a result of this development. (Photo of State Lease Property is attached.)

There will be quarrying to determine the quality and extent of the limestone deposit encompassed by the State Lease. Extension of the present levels onto the Leased Property will occur as needed. We are presently projecting removal of approximately 5,600 cu. yds. of stone per year.

Chemstar will continue to report annually on the progressing development in its active quarry and the State Leased Property.

-106.5 "The operator must address the State Lands to be impacted, regarding salvageable soil or overburden material. The question of whether salvageable topsoil exists/existed in the facility area needs to be answered."

The terrain across the State Lease Property is very similar to that encountered in Chemstar's active quarry. The Lease Property is nothing more than a continuation of the same hillside we are presently quarrying. There is no more "topsoil" on the state lease property than on the property that has already been granted variance. (Photos are attached.)

The topsoil samples that were collected for testing could not be collected in accordance with prescribed procedures since the depth of the soil was only 2 to 4 inches, laying between rock exposures. As previously stated, the soil could only be collected with a "teaspoon".

No salvageable soil exists in the facility area. Minus 3/8" fines have been distributed around the entire facility to keep down dust, and maintain a clean appearance.

The proposed "roped off area" is located west of the southern rock dump area. A bed of fines, approx. 8 inches deep, was placed there to determine if it will allow naturally seeded plants to grow. A fertilizer will be added to meet the recommendations from the soil test analysis results.

-106.6 "A plan describing how any residual area soils, overburden and fines will be collected, stockpiled, protected from erosion and redistributed (at what depth) to disturbed areas still needs to be developed.

Residual area soils and overburden have been determined to be noncollectible due to the rock strata. This has been previously discussed, and variance has already been granted based on photos, and the Division's inspection of our site. The State Lease Property has essentially the same strata. Photos have been attached to show this.

The collection of -3/8" fines has been ongoing for more than a decade. The stockpile sites are shown on maps provided previously. Since the fines are a natural byproduct of our stone crushing and screening process, there will be an unending, continuously available supply on hand during operation of the facility. Several million tons of fines are already stockpiled. Erosion has not been a problem to date.

-106.7 "The plant survey information must be provided by the operator."

A test plot has been established to the west of the quarry area. This plot will be monitored to determine the success rate of seeding. A proposed seedbed mix is:

Seed Mix No. 2100

% Pure	Seed	Germ + Hard
2.78	W. Stem Rubber Rabbitbrush - VNS	84.00+0.00
4.86	Western Wheatgrass - ROSANA	89.00+0.00
5.87	Galleta Grass - VIVA	91.00+0.00
7.28	Thickspike Wheatgrass - CRITANA	95.00+0.00
7.33	Streambank Wheatgrass - SODAR	98.00+0.00
7.39	Shadscale - VNS	61.00+0.00
7.58	Indian Ricegrass - NEZPAR	91.00+0.00
8.22	Winterfat - VNS	65.00+0.00
9.58	Russian Wildrye - VNS	90.00+0.00
10.03	Crested Wheatgrass - VNS	88.00+0.00
11.81	Fourwing Saltbrush - VNS	8.00+64.00

0.07	Other Crop	Date Tested: 07/01/89
17.08	Inert Matter	Restricted Weed: None
0.12	Weed Seed	% Hard Seed: 8.23

Fertilizer will be applied to the reclaimed surfaces by conventional mechanical applicators or will be broadcast by hand. The application rate will be at a rate of 100 lbs. per acre.

-106.8 "Water Quality & Groundwater depth."

The groundwater depth was determined from topographical maps showing the level of several free-flowing springs located around our facility.

Samples were taken from three sites at or near our facility. These sites were discussed with the Division prior to sampling. The water analyses report is attached. As agreed, no sample was taken from the wastewater pond since there is presently no water in the pond. Samples were obtained from: 1. Wastewater discharged from the Hydrate



Plant; 2. The pond at the entrance to our facility, fed by an underground spring; 3. Free-flowing spring northwest of our facility. The pond is an adjacent downgradient spring.

#### **R647-4-107. Operation Practices**

-107.1.12 "A description of the disposal of trash, scrap metal, etc., during operations needs to be submitted."

All trash is disposed of using the backfill method. This disposal area is located east of the lime dump on Chemstar's Property.

Scrap Metal is collected, stockpiled in a scrapyard, and sold to Scrap Dealers annually.

-107.6 "The Division requires that areas no longer needed for mining be reclaimed in a timely fashion, and concurrently to active operations."

Chemstar is developing its quarry operations. As discussed in other sections of this document, reclamation will occur as sites are no longer necessary for ongoing operations. As quarry levels are used up and are abandoned, immediate reclamation to those levels will be initiated. Temporary access roads have already been reclaimed.

Plant facilities, auxiliary facilities, and all equipment that has been decommissioned, has been removed or salvaged. Building foundations have been broken up and hauled away to approved landfills. This has been an ongoing policy.

Waste dumps have been addressed in R647-4-105.3.17.

Access roads will be abandoned and reclaimed per procedures outlined under R647-4-110.3 under Reclamation Plan.

#### **R647-4-109. Impact Assessment**

-109.1 "An operational impact assessment on the local surface and groundwater resources cannot be confirmed, until the Division has evaluated representative analyses of the local groundwater and processing waste water discharge."

Representative analyses of local groundwater and processing waste water discharge are attached.

-109.4 "A description of the anticipated final quarry configuration, detailing the location and number of 25 foot levels and ledges remaining, should be submitted."

The state has indicated that "a variance for leaving quarry wall faces at 25 feet and 60 degrees may be justified, depending upon the number and location of these faces." A study preformed by a mining engineer, retained to look over this quarry operation, indicates that the most stabile configuration in mining this mineral, with the steep dip, is to leave the bed faces intact. This would require leaving the bench faces at 50 to 60 degrees in accordance with the natural slope of the bed.

Cross-sectional diagrams of the quarry show the anticipated slope of the quarry when mining is completed.

Attachment 109.4 (anticipated final quarry configuration)

There will be 19 levels when all useable stone has been removed. See attachment for further details.

#### **R647-4-110. Reclamation Plan**

-110.2 "The operator must provide the Division with information concerning the anticipated final grade, slope contour and configuration of the quarry, waste dumps, and overburden disposal areas."

#### **Quarry**

Attached topo. maps, and slope diagrams show the anticipated appearance of the quarry area when all removeable stone has been used. (Estimated at 400 to 500 year supply of stone at present production.) The anticipated slope is approx. 35.5 degrees. To meet the Mine Safety and Health Act (MSHA) regulations, a 10 to 15 foot catch basin will be left on each level to keep rock from rolling from the top of the bench to the lower levels. The floor of the basin will be covered with 6 inches of reject fines, seeded, and fertilized as needed. This added basin will bring the final slope to 35.5 degrees. The lowest level will be at about the same level as the existing office for Chemstar's facility.

#### **The Waste Rock Dump**

The waste rock dump will be reclaimed to blend into the surrounding topography to the extent practical. Outslopes will be maintained to 2:1 or less. Reclamation efforts for the waste rock dump will include regrading and covering with



fines as needed to provide for revegetation. The sizing and distribution of the waste rock in these dumps maximizes stability and allows for the 2:1 slope. The upper surface of the dump will be sloped into the side of the hill to prevent drainage off the face of the dump and allow for drainage off the top of the dump.

Regrading during final reclamation will be done to blend in with the surrounding landscape as much as possible. Drainages will be constructed on either side of the dump to facilitate runoff. The final configuration of the waste rock dump will be covered with limestone fines and revegetated. Some species selected for revegetation of the waste rock dump will be chosen for rapid growth to stabilize soil.

-110.3 "The application must indicate which, if any, of the roads, pads, utilities, and other associated surface facilities will remain upon final reclamation."

By the time the useable stone is exhausted, most access roads will have been removed to reclaim the stone under them. All other access roads, on Chemstar's patented and leased property, will be brought into condition suitable to sustain revegetation. These roads will be partially recontoured by backfilling the road with downslope fill material. This can commonly be accomplished by pulling the berm and spreading it across the road. All new roads will be outsloped and graded to establish natural drainage and prevent channeling. Compacted road surfaces will be loosened or ripped and, where possible, steep cut or fill areas will be graded to reduce slopes. Erosion control methods will be implemented as necessary during reclamation. Material will be placed on prioritized portions of road surfaces, amended, and reseeded. Banks and slopes of the road will be hand-seeded and mulched if necessary.

#### **Other Facilities**

Plant facilities and all equipment on site will be decommissioned and removed or salvaged if other acceptable uses for these facilities are not found. The building foundations will be broken up and hauled away to an approved landfill. The building and facility sites will be graded to establish drainage and fill in depressions. Surfaces will be loosened before reseeding. All water supply lines will be removed, and any disturbance as a result of removing the water lines will be seeded and mulched.

#### **Powerlines, poles, and natural gas pipelines.**

All powerlines, poles, natural gas pipelines and telephone lines, That are the property of Chemstar, will be



removed. All other equipment covered by existing easements to another entity, will be the responsibility of that entity upon the closure of the minesite. (ie: telephone lines & poles - U.S. West; Powerlines & poles - Utah Power & Light; Natural Gaslines - Mountain Fuel Supply.)

#### PCB containing Transformers.

All transformers, on site, have been tested for PCB's. Copies of the test results are maintained at the facility. There are not any transformers that contain PCB's at Chemstar's facility to date.

-110.4 "How does the operator propose to reclaim areas labeled as waste dumps?"

Any waste dumps that are left, at the closure of the minesite, will be covered with material that has been determined capable of sustaining revegetation. The depth of said material will exceed 8 inches to facilitate revegetation. Naturally occurring vegetation at the facility is presently growing in soil that does not exceed 3 to 4 inches in most places.

The front of the lime dumps will be manicured to a 3:1 slope. The top of the dumps will be sloped back into the hillside to reduce erosion across the front slope. Drainages will be constructed on either side of the dump to facilitate runoff. The dump will be reclaimed to blend into the surrounding topography to the extent practical.

The final size of the waste piles is not determinable to date. Marketing of the materials stored in these piles will reduce their size significantly. New processes to reduce waste have already reduced amounts removed to these areas.

References to "buriabiles" and "waste fill" should be deleted from the previous application. Proposed reclamation contained in this document will supersede these references, and concrete foundations and pads will, as stated above, be removed to approved landfill.

#### Pond Reclamation.

Upon closure of the minesite, the sediments within the wastewater pond will be removed to the waste lime dump. The berm enclosing said pond will be removed by spreading the material composing it across the bottom of the pond. Swamp grass is presently covering a large portion of the pond which indicates that the floor of the pond presently will sustain revegetation. Reseeding will done in areas wherein the grass has not been known to grow.

RECLAMATION  
ESTIMATE 11  
6

LIME DUMPS  
WASTE ROCK  
DUMPS 2:1  
DEC. 10.2



## **R647-4-111. Reclamation Practices**

### **-111.3 Erosion Control.**

References have been made through the Reclamation Plan regarding Erosion Control. Reclamation of these areas is expected to include minor grading to produce surfaces similar to existing topography and vegetation.

#### **Waste water ditch.**

The waste water ditch will be removed by backfilling. The ditch size ranges from 12 inches in width to about 4 feet across in flat areas where meandering takes place.

R647-4-113. Surety.

-113.3 The operator's plan did not contain a reclamation surety estimate. This calculation would reflect the operator's cost estimate to reclaim the mine quarry and associated processing facilities area. The Division will use this estimate as a basis for determining the State's (3rd party) costs to reclaim the site.

Disturbed Acreage and Final Reclaimed Acreage

The table below shows the total disturbed acres by the end of the proposed 8 year period (ending 2000) and the number of acres that will be reclaimed. The difference (2.6 acres) between the disturbed acres and the reclaimed acres is a result of variances for the working faces within the quarry. Working faces represent about 10% of the total disturbed quarry area.

<u>Disturbed Acres vs Reclaimed Acres</u>		
<u>Area</u>	<u>Disturbed Acres (calc. to 2000)</u>	<u>Reclaimed Acres @ End of Mining</u>
West Quarry	24.0	21.4
State Leased Property	3.0	2.7
Waste Rock Area	2.0	2.0
Haul Road from Quarry & Access Roads	5.0	5.0
Waste Lime Dump	9.0	9.0
Fines Stockpile	4.0	4.0
Wastewater Pond	13.0	13.0
Plant Site	<u>17.0</u>	<u>17.0</u>
TOTAL	77.0	74.1



# Estimate of Reclamation Cost

Description	Quantity	Unit	\$/Unit	Total Cost (\$)
<b>West Quarry Reclamation</b>				
Scarify Benches to 12" depth	37,745	CY	0.10	3,775
Cover with 6" LS fines	18,870	CY	0.65	12,265
Reseed & Fertilize	23.4	Acres	250.00	5,850
<b>Subtotal</b>				<b>21,890</b>
<b>State Leased Property</b>				
Scarify Benches to 12" Depth	4,355	CY	0.10	435
Cover with 6" LS fines	2,177	CY	0.65	1,415
Reseed & Fertilize	2.7	Acres	250.00	675
<b>Subtotal</b>				<b>2,525</b>
<b>Waste Rock Area</b>				
Grade to 2H:1V Slope	6,400	CY	0.30	1,920
Cover with 6" LS fines	1,600	CY	0.65	1,040
Reseed & Fertilize	2.0	Acres	250.00	500
<b>Subtotal</b>				<b>3,460</b>
<b>Haul Road From Quarry &amp; Access Roads</b>				
Scarify to 12" Depth & Regrade	8,070	CY	0.20	1,615
Reseed & Fertilize	5.0	Acres	250.00	1,250
<b>Subtotal</b>				<b>2,865</b>
<b>Waste Lime Dump</b>				
Grade to 3H:1V Slope	28,800	CY	0.30	8,640
Cover with 6" LS fines	7,200	CY	0.65	4,680
Reseed & Fertilize	9.0	Acres	250.00	2,250
<b>Subtotal</b>				<b>15,570</b>
<b>Fines Stockpile</b>				
Grade to 3H:1V Slope	8,165	CY	0.30	2,450
Reseed & Fertilize	4.0	Acres	250.00	1,000
<b>Subtotal</b>				<b>3,450</b>
<b>Wastewater Pond</b>				
Remove Sediments to dump	15,800	CY	0.65	10,270
Cover with 6" LS fines	10,400	CY	0.65	6,760
Reseed & Fertilize	13.0	Acres	250.00	3,250
<b>Subtotal</b>				<b>20,280</b>
<b>Plant Site</b>				
Demolition	Lump Sum			????
Remove Trash	17.0	Acres	100.00	1,700
Regrade & Contour	17.0	Acres	430.00	7,310
Reseed & Fertilize	17.0	Acres	250.00	4,250
<b>Subtotal</b>				<b>13,260</b>

**SIGNATURE REQUIREMENT:**

**Applicant Certification**

I hereby certify that the foregoing is true and correct:

RR Johnstone Plant Manager  
Signature of Authorized Representative of Chemstar Lime Company.

Date: Dec 22, 1991